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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,751	04/08/2005	Jun Hagihara	Q87381	7326
65565	7590	04/21/2011	EXAMINER	
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WASHINGTON, DC 20037-3213			PAPER NUMBER	
			3664	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

SUGHRUE265550@SUGHRUE.COM  
USPTO@SUGHRUE.COM  
PPROCESSING@SUGHRUE.COM

### Office Action Summary

**Application No.**

10/530,751

**Applicant(s)**

HAGIHARA ET AL.

**Examiner**

SPENCER PATTON

**Art Unit**

3664

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The amendments filed 2/7/2011 have been entered. Claims 1-3, 5 and 6 are pending.

### ***Drawings***

2. The drawings are objected to because Figures 1, 2, 4 and 5 recite "1-rank differential value," "2-rank differential value" etc. All occurrences of these terms should be replaced with --1st order differential--, --2<sup>nd</sup> order differential-- etc. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 1-3** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitations “wherein N is set to be equal to or greater than a value defined by subtracting an order of the command from an order of denominator of a transfer function of an approximation model that represents the controlled object with Laplace operator” and “wherein N is set to be equal to or greater than a value defined by subtracting an order of the command from L” are not supported by the application as filed.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-3, 5 and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al (JP 10-149210).

Yamamoto et al teaches:

**Re claim 1.** An optimum command producing apparatus configured to receive a command, process the command in such a manner that a controlled object implements a desirable operation and output an optimum command value to a servo control apparatus, the apparatus comprising:

an N-order filter processing section configured to carry out an N-order filter processing for the command and calculate values from a 1-order differential value to an (N-1)-order differential value of the command subjected to the filter processing, wherein N is an integer of 2 or more (instruction generation part 1, Figure 1; generates first through fifth differential values of theta); and

an arithmetic unit configured to calculate a value obtained by multiplying each of the values calculated by the N-order filter processing section by a corresponding one of gains (instruction generation part 1, Figure 1; multiplies each differential value of theta by coefficients  $a_{1-5}$ ), and

wherein N is set to be equal to or greater than a value defined by subtracting an order of the command from an order of denominator of a transfer function of an approximation model that represents the controlled object with Laplace operator (paragraph [0011]).

**Re claim 2.** The limitations omitted from claim 2 are addressed at Re claim 1.

an M-order filter processing section configured to perform an M-order filter processing the value calculated by the arithmetic unit wherein M is an integer of 1 or more (position control part 3, Figure 1; this is a first order filter).

**Re claim 3.** An optimum command producing apparatus configured to receive a command, process the command in such a manner that a controlled object implements a desirable operation and output an optimum command value to a servo control apparatus, the apparatus comprising:

an N-order filter processing section configured to carry out an N-order filter processing for the command and calculate values from a 1-order differential value to an L-order differential value of the command subjected to the filter processing, wherein N is an integer of 2 or more and L is an integer of 1 or more (instruction generation part 1, Figure 1; generates first through fifth differential values of theta); and

an arithmetic unit configured to multiply each of the values calculated by the N-order filter processing section by a corresponding one of gains, and then sum all of the resulting products (instruction generation part 1, Figure 1; multiplies each differential value of theta by coefficients  $a_{1-5}$  and then sums them in filter 6 as shown in equation 2),

wherein L is an order of denominator of a transfer function of an approximation model that represents the controlled object with Laplace operator (equation 2), and

wherein N is set to be equal to or greater than a value defined by subtracting an order of the command from L (paragraph [0011]).

**Re claim 5.** Wherein a recursive type filter or a non-recursive type filter is used for the N-order filter (instruction generation part 1, Figure 1).

**Re claim 6.** Wherein the optimum command value is one of a position command, a speed command, an acceleration command and a torque command or a combination thereof (position command theta, Figure 1).

***Response to Arguments***

6. Applicant's arguments, see page 7, filed 2/7/2011, with respect to the 35 USC 112 first paragraph rejection of claim 3 regarding the value of "L" have been fully considered and are persuasive. The portion of the 35 USC 112 first paragraph rejection of claim 3 regarding the value of "L" has been withdrawn.

7. Applicant's arguments filed 2/7/2011 have been fully considered but they are not persuasive.

8. Applicant argues, on pages 5-7, with respect to the 35 USC 112 first paragraph rejection of claims 1-3, that the claims recite enabling disclosure of how to arrive at the value of "N," however amendments to the application cannot be used to overcome a written description or new matter rejection as the amended material was not in the application as originally filed. Applicant further argued that the examples given in the specification provide support for the limitations added to the claims. However these examples do not indicate any subtraction was performed, and there are other ways one

could arrive at the value of "N" in the examples provided in the specification. In the example provided at the bottom of page 6 of applicant's response, one could assume that N was set equal to 4 because "it is necessary to convert the given command into a command which is 4-rank differentiable." Setting N equal to 4 will always provide a 4th order differentiable command, and thus no subtraction was necessary or suggested in this example from Applicant's specification.

9. Applicant argues, on page 8, with respect to the 35 USC 102 rejection of claims 1-3, that Yamamoto utilizes a transfer function of the entire control system, whereas the claims require the transfer function of the control object. The claims do not make it clear what the control object is limited to. Is the control object the machine tool or industrial robot; or is the control object the object being manipulated by the machine tool or industrial robot? It should also be noted that the transfer function of Yamamoto is reflecting the angle of rotation of a load as indicated at paragraph [0004] of Yamamoto; and XL as indicated at equation (1) of the present application is the load position. The transfer functions of the prior art and the present application are not sufficiently distinguished.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SPENCER PATTON whose telephone number is (571)270-5771. The examiner can normally be reached on Monday-Thursday 7:30-5:00; Alternating Fridays off.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571)272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SPENCER PATTON/  
Examiner, Art Unit 3664  
/KHOI TRAN/  
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